Waste incineration and the community - The Amsterdam experience

The successful community relations strategy followed by the operator of Amsterdam's waste-to- energy plant has convinced the public and other stakeholders of the benefits of incineration for treating the city's waste

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The incineration of municipal waste has been the subject of controversy for many years and has been widely opposed because of concerns about the pollution of the air with toxic materials, particularly dioxins. Many incinerators have had to stop operation and many projects have been abandoned. At the same time, communities continue to be faced with the challenge of handling growing amounts of waste, particularly with the growth of large urban areas producing thousands of tonnes of waste every day.

The AEB facility in Amsterdam seeks to provide the lowest-cost waste treatment, generate sustainable electricity and heat, and extract all useful materials. PHOTO: AEB

What solutions are available?

Separation at source with recycling and composting, landfilling, or possibly incineration (if the associated controversy can be resolved satisfactorily for the community) are all possible solutions to the growing MSW problem.

Separation at source of glass, metals, plastics, paper and hazardous materials from the organic portion of household waste, together with selective collection, is being adopted gradually in most urban centres where it is replacing attempts to separate waste mechanically or manually after collection. This approach, which was tested in Amsterdam in 1920 and again in 1987, was not successful because the separated items were not sufficiently clean for recycling and the use of manual labour proved undesirable.

Recycling of these source-separated materials, which would be theoretically feasible and attractive, has been only partly successful because the volumes collected have often exceeded the recycling capacity. Composting the organic portion has also been carried out, but the economics of large-scale composting remains problematical.

Landfilling is also controversial because of the nuisances of odour, the emission of greenhouse gases, the contamination of groundwater, explosion risks and the generally unsightly appearance of the sites. Early landfills were ugly, chaotic waste dumps and it has been difficult to overcome this image in spite of the many significant improvements in landfill design, operation, biogas recovery, leachate treatment and aftercare of the site. In any case, it has become increasingly apparent that burying waste in landfills cannot be a long-term solution. Even if biogas is extracted correctly and its energy recovered efficiently, other potentially recoverable materials remain buried forever.

Can incineration provide a solution that overcomes the shortcomings of these options? Amsterdam's experience would suggest that the answer is a clear 'yes'!

Amsterdam's approach to waste incineration

The City of Amsterdam had been incinerating municipal waste since 1919 with two successive incinerators. When the second incinerator needed to be replaced in the early 1990s, it was decided to build a new plant rather than trying to upgrade the old installations. At the same time, a new approach was adopted for waste management.

Communities continue to be faced with the challenge of handling growing amounts of waste

In 1992, the City of Amsterdam created Afval Energie Bedrijf (AEB), a waste-to-energy enterprise that operates as a self-contained entity but is owned by the City. AEB's mission is to recover as much energy and materials as possible from municipal waste while protecting the environment. It seeks to provide residents with the lowest-cost waste treatment, to generate sustainable electricity and heat, and to extract all useful materials.

In 1993, AEB began operating a large incinerator on a site at the western end of the city in the area known as Westpoort. After 12 years of operation, it can be confidently said that it has been an important success. While treating more than 800,000 tonnes per year of waste, the installation has produced 580,000 MWh of electrical energy, 102,000 GJ of heat and 180,000 tonnes of construction materials from bottom ash - all this with minimal air pollution and with a positive reaction from the population.

ABOVE LEFT Effective flue gas cleaning means that the 'smoke' emitted from the chimney of the AEB waste-to-energy plant is almost pure steam. PHOTO: AEB
ABOVE RIGHT High-quality building materials are produced from waste in a special plant. PHOTO: AEB

In 2006, AEB will start operating a 66% expansion of the incineration facilities (currently under construction). At the same time, an adjoining new sewage treatment plant serving one million inhabitants will start operating. The two installations will take advantage of several positive interactions, including utilization of the biogas produced from sewage sludge digestion. This €338 million expansion will create the world's largest municipal waste treatment centre. It has been granted all the relevant permits without any public opposition and with support from non-governmental organizations (NGOs).

How has this been achieved?

The answer is simple - by abating all environmental impacts from the plant beyond regulatory requirements and by conducting an excellent programme of community relations.

What AEB wanted to communicate was that the negatives associated with incineration had been overcome and that state-of- the-art incineration offered many tangible benefits for the citizen.

In approaching its communication programme, AEB acknowledged fully the negative image that incineration had developed. Historically, many incinerators had incomplete flue gas cleaning leading to unacceptable emission levels. Effective cleaning technology to remove the harmful contaminants became available, but it was necessary to justify the heavy investment required by showing clear benefits for the community and the environment.

AEB's experiences since 1993 demonstrate that incineration can provide important benefits:

- a waste management system without emissions to groundwater and with insignificant emissions to air
- lower-cost waste treatment
- sustainable electricity and district heating
- the recovery of non-combustible materials present in waste such as steel, non-ferrous metals and construction solids

Another very significant part of this picture is the commitment that AEB gave to the Province and City of Amsterdam in support of its request for the relevant permits for the plant now being built. AEB has agreed to:

- further reduce specific emissions to the air and groundwater
- reduce the thermal load to the environment with increased efficiency
- reduce the cost of waste treatment with increased recovery
- improve production of sustainable electricity
- reduce the use of road transport
- protect the total investment with 15-year waste delivery contracts

All this would seem to add up to a clearly positive picture for incineration, but against the background of long-standing public concerns, this picture needed to be communicated convincingly to the community. The performance of AEB in this respect is exemplary.

AEB's approach to community relations

To understand in detail what Amsterdam has done, I spoke at length with several key members of the AEB organization (Mr K.D. van der Linde, General Manager; Mr W.M. Sierhuis, Safety, Environment and Business Development Manager; Mr M. Van Berlo, Technical Advisor; and Ms E. Jonkhoff, Marketing Manager).

AEB's E338 million expansion will create the world's largest municipal waste treatment centre

It became clear from these discussions that early on AEB adopted a deliberate strategy and programme of communications with national authorities, city officials responsible for funding the projects, regulatory officials, NGOs and the general public. This strategy can be described in two words total transparency.

The implementation of this strategy involved a lengthy programme of activities, extending over several years, with the primary objectives of building trust and credibility for its activities. Its key features are outlined below.

Allowing sufficient time for the community relations programme

In the case of both the 1993 and the 2006 projects, the programme started about six years before the installation was complete. It was important to start early enough to allow plenty of time for all involved to digest and discuss the information received. There had to be sufficient time for meetings, site visits and requests for additional details. It was also important to avoid giving the impression of rushing to a decision, or that what was being discussed had already been decided.

Establishing a dialogue among equals

The dialogue was undertaken while fully respecting the viewpoints and responsibilities of all the other groups in the community. Differences of opinion were expected and acknowledged. It was a dialogue among equals and any semblance of technological arrogance on the part of AEB was avoided.

In these discussions, AEB recognized that political leaders, regulatory officials, environmental NGOs, consumer groups, waste management industries, other societal groups and the media all have a definite sense of their roles and responsibilities in the community. These had to be acknowledged and treated with respect.

Acting in a totally open manner

This was the most important element in implementing AEB's strategy of total transparency.

AEB was totally open in its communications: no information was held back, all requests and questions were answered, and visits to the installations were arranged. Regarding the operation itself, AEB responded readily to requests for performance data including emissions. There were no secrets.

A special effort was made to communicate technical complexities in terms that non-experts could understand

AEB was equally open in revealing promptly to the authorities, NGOs and the media any operating problems that resulted in temporary deviations from emission regulations. In these communications, the corrective action being taken was also confirmed.

AEB continues to publish annual reports giving full details of the financial, technical, social and environmental aspects of its operations.

Communicating in understandable language

A special effort was made to communicate the technical complexities of the operations accurately, but in terms that non-experts could understand. AEB conducted its programme in the belief that the basic facts of the waste management process - as they impact the citizen - can and should be expressed in everyday language. Even thermodynamic details of the combustion process can be presented in language that is

understandable and not irritating to the non-expert listener. However, the underlying considerations with regard to health, environment and safety are clearly communicated to everyone.

Trying to find common ground

AEB makes a special effort to find common ground with other societal groups. A major objective of the communications programme was to point out that AEB and many societal groups shared common objectives. This was particularly applicable to the discussions with the NGOs advocating better environmental protection, better energy utilization and alternative energy sources. Once these groups realized that AEB was pursuing the same goals, their potential opposition was transformed into enthusiastic support.

Involving the citizen

A principal objective of the AEB programme has always been to increase the involvement of the citizens of Amsterdam in the waste management process. In most modern societies, the people producing the waste have only a vague notion of what happens to this waste after it is picked up from their doorstep. An important element in the AEB communications programme has been to make the inhabitants of Amsterdam aware of the subsequent process and to be involved in the discussions and decisions regarding the treatment of their waste.

Conclusion

In reviewing the AEB communications programme, it could be asked, what's so new? Aren't these the concepts of good public communication? Isn't this simply good practice? AEB has indeed applied concepts that are well known in the fields of public affairs and public relations. But it has done so in a systematic programme of deliberate activities that, regrettably, are not seen often enough in discussing public issues of this type.

The AEB experience not only demonstrates what can be done with incineration. It is an excellent example of integrated waste management from which other urban centres in the Netherlands and in Europe could derive similar benefits.

The immediate results of AEB's achievements are the direct benefits to its community. Longer term, the trust and credibility that AEB has developed in the community will prove helpful in supporting the further improvements in energy efficiency and resource recovery that AEB is already planning.

Further reading

Afval Energie Bedrijf (AEB). *More*. 2003 Annual Report, 2003.
Afval Energie Bedrijf (AEB). *Nothing is waste*. Booklet, 2003.
KEMA. *Eco-port Amsterdam*. Booklet, 23 March 2004

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